Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended) A method to generate a preamble sequence ~~to decrease a peak-to-average power ratio (PAPR) through at least two antennas~~ in an orthogonal frequency division multiplexing (OFDM) communication system having a plurality of subcarriers actually in use and identified by unique numbers in a frequency domain, the method comprising the steps of:

generating a first short preamble sequence with elements corresponding to the plurality of subcarriers, wherein data other than null data is inserted for elements associated with a subcarrier identified by a unique number that is an even number;

generating a second short preamble sequence with elements corresponding to the plurality of subcarriers, wherein data other than null data is inserted for elements associated with a subcarrier identified by a unique number that is an odd number; and

generating a preamble sequence in a time domain by transforming one of the first and second short preamble sequences according to a transmission rule by using an inverse Fast Fourier transform.

Claim 2. (Currently Amended) The method of claim 1, wherein ~~the PAPR~~ a peak-to-average power ratio (PAPR) is decreased through at least two antennas in the OFDM communication system.

Claim 3. (Currently Amended) The method of claim 1, wherein the first-short preamble sequence is adapted to be transmitted via one of ~~the~~ at least two antennas.

Claim 4. (Currently Amended) The method of claim 3, wherein the second short preamble sequence is adapted to be transmitted via one of ~~the~~ at least two antennas.

Claim 5. (Currently Amended) The method of claim 1, wherein the first short preamble sequence is generated for a next orthogonal frequency division multiplexing

symbol period after passage of ~~the~~ one orthogonal frequency division multiplexing symbol period.

Claim 6. (Previously Presented) The method of claim 5, wherein the second short preamble sequence is generated for a next orthogonal frequency division multiplexing symbol period after passage of the one orthogonal frequency division multiplexing symbol period.

Claim 7. (Previously Presented) The method of claim 2, wherein the first short preamble sequence is adapted to be transmitted via a first of the at least two antennas for one orthogonal frequency division multiplexing symbol period and a second of the at least two antennas for a next orthogonal frequency division multiplexing symbol period after passage of the one orthogonal frequency division multiplexing symbol period.

Claim 8. (Previously Presented) The method of claim 7, wherein the second short preamble sequence is adapted to be transmitted via the second of the at least two antennas for one orthogonal frequency division multiplexing symbol period and the first of the at least two antennas for the next orthogonal frequency division multiplexing symbol period after passage of the one orthogonal frequency division multiplexing symbol period.

Claim 9. (Previously Presented) The method of claim 1, wherein the second short preamble sequence is Pg(-100:100) and is defined as

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Pg(-100:100)= {0,-1, 0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,+1, 0,-1, 0,-1,
               0,+1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,-1, 0,+1, 0,+1,
               0,+1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,-1 ,0,+1, 0,+1,
               0,-1, 0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,+1, 0,-1, 0,-1,
               0,-1, 0,-1, 0,+1, 0,+1, 0,+1,0,+1, 0,+1, 0,-1, 0,+1, 0,+1,
               0,-1,
               0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,+1, 0,-1, 0,-1, 0,-1,
               0,-1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,-1,
               0,-1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,-1,
               0,-1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,+1,
               0,+1, 0,-1, 0,-1, 0,-1, 0,-1, 0,-1, 0,+1, 0,-1, 0,-1, 0}
               *sqrt(2)*sqrt(2)
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Claim 10. (Previously Presented) The method of claim 1, wherein the first short preamble sequence is P(-100:100) and is defined as

P(-100:100) = { -1, 0,+1, 0,+1, 0,+1, 0,+1, 0,-1, 0,-1, 0,+1, 0,-1, 0,+1, 0,
-1, 0,-1, 0,+1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,
-1, 0,+1, 0,+1, 0,-1, 0,+1, 0,-1, 0,-1, 0,+1, 0,-1, 0,-1, 0,
-1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,
-1, 0,-1, 0,-1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,
0, 0,
-1, 0,-1, 0,+1, 0,-1, 0,-1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,
+1, 0,+1, 0,-1, 0,-1, 0,-1, 0,-1, 0,-1, 0,-1, 0,+1, 0,-1, 0,
-1, 0,-1, 0,-1, 0,-1, 0,-1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,
-1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,+1, 0,-1, 0,-1, 0,-1, 0,
-1, 0,-1, 0,+1, 0,-1, 0,-1, 0,+1, 0,-1, 0,-1, 0,+1, 0,-1}
*sqrt(2)*sqrt(2)

Claim 11. (Currently Amended) An apparatus to generate a preamble sequence ~~to decrease a peak-to-average power ratio~~ in an orthogonal frequency division multiplexing communication system having a plurality of subcarriers actually in use and identified by unique numbers in a frequency domain, the apparatus comprising:

a first antenna preamble sequence generator to generate a first short preamble sequence with elements corresponding to the plurality of subcarriers, wherein data other than null data is inserted for elements associated with a subcarrier identified with a unique number that is an even number;

a second antenna preamble sequence generator to generate a second short preamble sequence with elements corresponding to the plurality of subcarriers, wherein data other than null data is inserted for elements associated with a subcarrier identified with a unique number that is an odd number; and

an inverse fast Fourier transform (IFFT) processor to generate a preamble sequence in a time domain by transforming one of the first and second short preamble sequences according to a transmission rule by using an IFFT.

Claim 12. (Previously Presented) The apparatus of claim 11, wherein the second short preamble sequence is Pg(-100:100) and is defined as

Pg(-100:100)= {0,-1, 0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,+1, 0,-1, 0,-1,
0,+1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,-1, 0,+1, 0,+1,
0,+1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,-1 ,0,+1, 0,+1,
0,-1, 0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,+1, 0,-1, 0,-1,
0,-1, 0,-1, 0,+1, 0,+1, 0,+1,0,+1, 0,+1, 0,-1, 0,+1, 0,+1,
0,-1,
0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,+1, 0,-1, 0,-1, 0,-1,
0,-1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,-1,
0,-1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,-1,
0,-1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,+1,
0,+1, 0,-1, 0,-1, 0,-1, 0,-1, 0,-1, 0,+1, 0,-1, 0,-1, 0}
*sqrt(2)*sqrt(2)

Claim 13. (Previously Presented) The apparatus-of claim 11, wherein the first short preamble sequence is P(-100:100) and is defined as

P(-100:100) = { -1, 0,+1, 0,+1, 0,+1, 0,+1, 0,-1, 0,-1, 0,+1, 0,-1, 0,+1, 0,
-1, 0,-1, 0,+1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,-1, 0,+1, 0,
-1, 0,+1, 0,+1, 0,-1, 0,+1, 0,-1, 0,-1, 0,+1, 0,-1, 0,-1, 0,
-1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,
-1, 0,-1, 0,-1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,+1, 0,
0, 0,
-1, 0,-1, 0,+1, 0,-1, 0,-1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,
+1, 0,+1, 0,-1, 0,-1, 0,-1, 0,-1, 0,-1, 0,-1, 0,+1, 0,-1, 0,
-1, 0,-1, 0,-1, 0,-1, 0,-1, 0,+1, 0,+1, 0,+1, 0,-1, 0,+1, 0,
-1, 0,+1, 0,+1, 0,-1, 0,+1, 0,+1, 0,+1, 0,-1, 0,-1, 0,-1, 0,
-1, 0,-1, 0,+1, 0,-1, 0,-1, 0,+1, 0,-1, 0,-1, 0,+1, 0,-1}
*sqrt(2)*sqrt(2)

Claims 14-18 (Canceled)